# THE GENUS LECHEA *(CISTACEAE)* IN THE SOUTHEASTERN UNITED STATES

ROBERT L. WILBUR[1] AND HAZIM S. DAOUD

The genus *Lechea* is a small group of about seventeen species found only in North and Central America and in the West Indies. Actually all of the species occur in the United States east of the Rocky Mountains except for one little known and seldom collected endemic from western Cuba. *L. tripetala,* which is found in Oklahoma, occurs in the United States only as one small population widely separated from the principal area of the species in Mexico and Guatemala. The genus is particularly well-represented in the southeastern United States (here defined as the area east of Texas and Oklahoma and south of Missouri, Kentucky and Virginia) where ten species occur and four of them are endemic. *L. Torreyi* cannot rank as an endemic due to its puzzling reappearance in the pine forests of British Honduras. The variety of *L. Leggettii* found in the Southeast barely ranges beyond its borders but does occur in southeastern Virginia. No other region possesses so many species of the genus nor can claim so rich and varied an endemic element.

*Lechea* is most strongly and clearly distinguished from all other genera within the family by its trimerous, persistent corolla; sessile, fimbriate stigmas and the presence of three incomplete partititions within the capsule. Hence for all practical purposes there has never been any real confusion over generic limits. *Lechea* has usually been considered a difficult genus due to the rather minute technical characters upon which the species distinctions rest. The admirable revision of Hodgdon (1938) has provided a firm foundation for an understanding of the genus by clarifying species limits and evaluating morphological variation. The key provided, however, relies to a considerable degree upon characters not present during the season when most specimens are collected, and therefore is not as usable as might be desired. Even plants collected with mature fruit and seeds often have not yet developed the basal shoots often called for in the key. These shoots are commonly not present until very late in the growing season. Although it does not now seem possible to prepare a key for sterile or even young flowering material, it is thought that the following key will aid in the determination of fruiting specimens of those species found in the southeastern United States.

---

[1] Grateful acknowledgement is made to the National Science Foundation for a grant of research funds to Duke University (NSF-G5636) which were used in part for this study.

Rafinesque (1836) in his monograph of the genus placed considerable emphasis upon the comparative lengths of the inner and outer sepals. The three subgenera recognized by him were actually largely characterized by the comparative lengths of the two whorls of the calyx. Since then most workers have placed considerable reliance upon this character. We too have found it a useful character and hence have employed it; but having seen considerable variation, especially in *L. racemulosa*, have felt it necessary to place this species under both leads of the key. Small's key (1933) is rendered almost unusable by too complete a reliance upon the constancy of this character. For example one would be in a quandary in attempting to determine a specimen of *L. villosa* with Small's key since in that species the outer sepals typically equal the inner and his key treats all species as having the outer lobes either longer or shorter than the inner sepals.

It was hoped when the present study was undertaken that it might result in some suggestions as to the relationships of the species and perhaps even a grouping of them into formal series or sections. Rafinesque recognized three subgenera based largely upon comparative lengths of the calycine whorls and also stamen and seed number. Spach in 1837 segregated the Texan species now known as *Lechea san-sabeana* as the monotypic genus *Lechidium* based largely upon the extreme development of the incomplete partitions found within the capsule. This taxon has since been treated as of subgeneric or sectional rank. Hodgdon accepted it as a section although admitting its close affinity to *L. tenuifolia* and *L. tripetala.* Small (1933) in his treatment of the genus, covering almost the same area as that in this paper, segregated the species into five named groups whose rank, as is customary in Small's Manual, is undesignated. Hodgdon declined to provide formal subgeneric categories except for the section *Lechidium.* Although the genus seems admirably suited for the construction of a phylogenetic tree based upon the rather obvious reduction series, our data are not sufficiently complete for us to present a phyletic scheme.

We are accepting the nomenclature of Hodgdon's revision and are ignoring the perplexing monograph presented by Rafinesque in 1836. It seems probable, however, that some of the twenty new species published by Rafinesque will eventually prove identifiable and will have priority over some of the names now current.

In the course of this study more than 4000 herbarium specimens were examined and annotated. For having made their collections available to us in whole or in part, we are indebted to the curators of the herbaria indicated below by the abbreviations: BUS, CU, F, FLAS, FSU, GA, IA, KY, MICH, MISSA, NCSC, NCU, NO, NY, OS, PUL, SMU, TENN, TEX, UARK, USF, VDB, U. of So. Carolina.

### KEY TO THE SOUTHEASTERN SPECIES OF LECHEA

1. Pubescence of aerial stems for the most part strongly divergent and spreading.
    2. Internal sepals conspicuously V- or U-shaped in cross-section with thin scarious margins and a roughened, often sparsely pilose keel (the sepal otherwise glabrous); leaves, or at least many of them, over 1:5 cm long; capsule thin-walled, readily splitting into 3 valves at maturity, subglobose, about equaling the calyx in length; widespread throughout much of the eastern United States ........................................................1. *L. villosa.*
    2. Internal sepals but slightly bowed in cross-section with texture appearing uniform and pubescence scattered across surface; leaves all less than 1 cm long; capsule thick-walled, indehiscent; ellipsoid or somewhat rounded- barrel-shaped, exserted from the calyx for at least 1/3-1/2 its length; restricted to peninsular Florida ..................................................................2. *L. divaricata.*
1. Pubescence of aerial stems mostly closely appressed or lacking.
    3. External sepals equaling or exceeding the internal sepals in length.
        4. Calyx of fruit and of older flowers strikingly differentiated into an obconic to somewhat cylindrical base about 0.4-0.6 mm

long, shiny and yellowish in color and scarious in texture contrasting considerably with the texture, color and appearance of the inner sepals; pedicels (at least after anthesis) averaging 2 mm or more in length.............7. *L. racemulosa.*

4. Calyx-base of fruit and of older flowers not conspicuously differentiated in texture, color or appearance from the inner sepals; pedicels averaging less than 2 mm long.
    5. Capsule completely enclosed by sepals, stigma not exposed after anthesis; fruit and inner sepals together subglobose; cauline and rameal leaves averaging 10 or more times as long as broad.................................3. *L. tenuifolia.*
    5. Capsule slightly to conspicuously exserted, the sepals not enclosing the top of the fruit; stigma exposed on developing and maturing fruit; fruit and inner sepals together cylindrical to pyriform (at least higher than broad); cauline and rameal leaves mostly less than 9 times as long as broad.
        6. External sepals at least one-fifth longer than the inner sepals and usually equaling or exceeding the capsule in length; capsule equaling or exceeding the inner sepals by not more than one-fifth its length; cauline leaves usually elliptic to elliptic-oblong, usually less than 5 times as long as wide, those below the inflorescence commonly appearing whorled and often more than 2 mm wide........................4. *L. minor.*
        6. External sepals about equaling the inner sepals and never equaling the capsule in length; capsule usually exceeding the inner sepals by about 1/3-1/2 its length; cauline leaves narrowly oblong to linear, usually 6 times (or more) as long as wide, those below the inflorescence alternate and less than 2 mm wide.......................................................................................5. *L. patula*

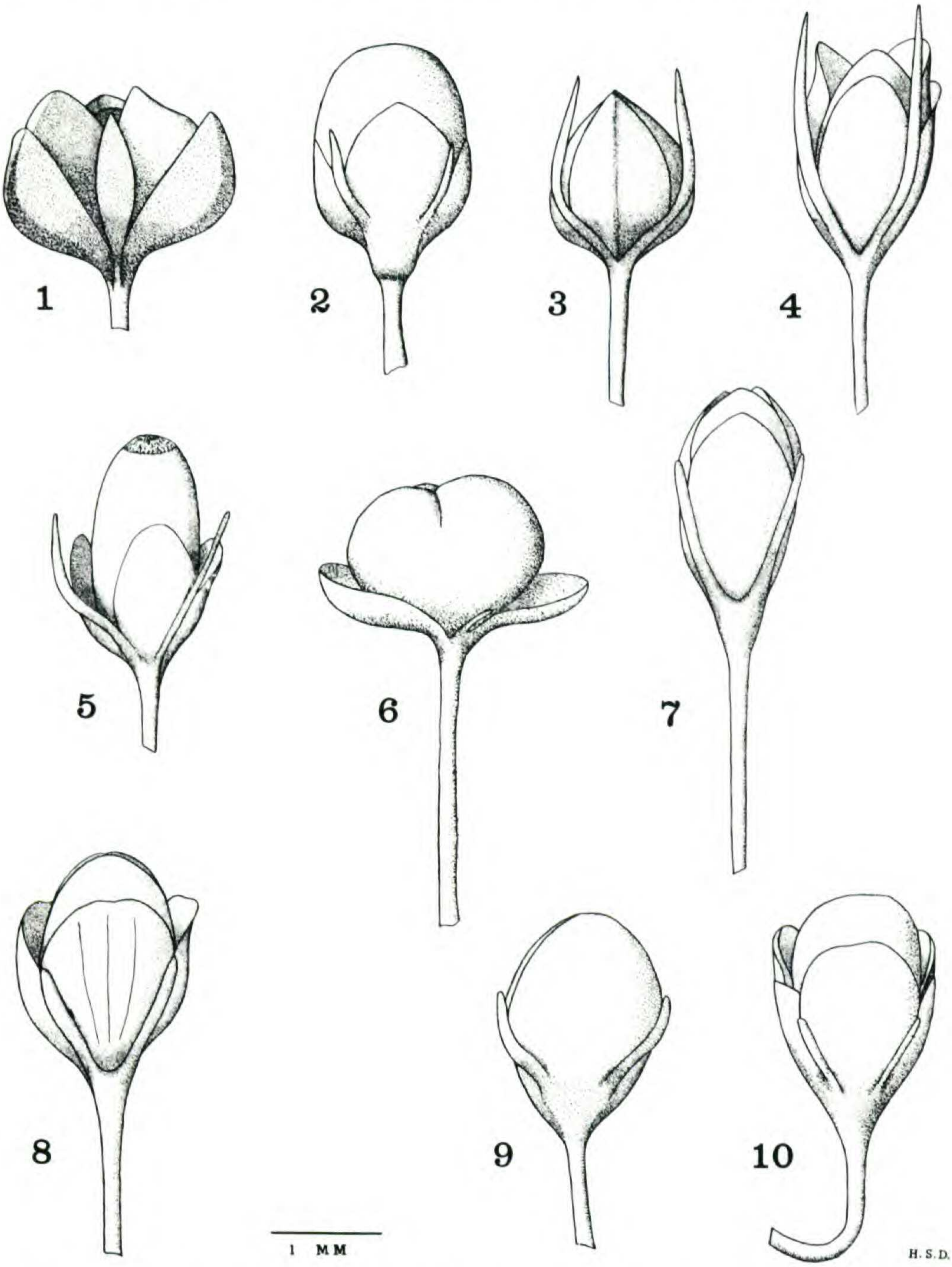
3. External sepals shorter than the internal sepals.
    7. Leaves pubescent on both upper and lower surfaces (at least those of the basal shoots conspicuously pilose above and below while the cauline and rameal leaves are usually inconspicuously pubescent over entire surface); flowers or fruits mostly clustered in 2's or 3's: capsule wall thickened and indurate; plants of peninsular Florida............10. *L. cernua.*
    7. Leaves variously pubescent below but glabrous on upper surface; flowers or fruits not appearing fascicled (attached separately); capsule wall thin or at least not conspicuously indurate.
        8. Aerial stems perennial, suffruticose, clearly woody at base, with wiry woody branches; capsule exserted from the often spreading calyx by 1/3-1/2 its length; calyx

sparingly short-pubescent to glabrous; known only from southern Georgia and Florida......................6. *L. Deckertii.*

8. Aerial stems annual, herbaceous, dying to the base each year; capsule equaling the calyx or exserted not more than 1/5 its length from the closely enveloping sepals; calyx moderately to densely pilose.
    9. Capsule and calyx together narrowly obovoid, about twice as long as broad; capsule narrowly ellipsoid or ovoid, 1.5 times or more as long as broad; pedicel filiform, about 0.1 mm in diameter; basal leaves, when present, less than 5 times as long as wide; distribution primarily in the Piedmont and Mountains but also occurring in the Coastal Plain............7. *L. racemulosa.*
    9. Capsule and calyx together broadly pyriform to obovoid, usually less than 1.5 times as long as broad; capsule ovoid to subglobose to broadly ellipsoid, about 1-1.3 times as long as broad; pedicel stout, at least 0.2 mm in diameter; basal leaves, when present, 6 or more times as long as wide; distribution typically of the Coastal Plain and the outer Piedmont.
        10. Leaves abruptly tapering at apex into a hardened, shiny, conical callosity about 0.25 mm long; inner sepal clearly 3-nerved (often best demonstrated by moistening); pedicels averaging over 1.5 mm long; capsule exceeding the sepals by about 1/5 its length; seeds mostly 2................8. *L. Leggettii.*
        10. Leaves pointed but not differentiated into a callosity; inner sepal 1-nerved; pedicels averaging less than 1.5 mm long; capsule almost completely enveloped by the sepals; seeds mostly 3-6............ ..............................................................9. *L. Torreyi.*

1. **L. villosa** Ell. Hodgdon recognized three varieties of this species. The one found throughout much of eastern North America is var. *villosa* (=var. *typica* Hodgd.). Apparently overlapping the range of this eastern variety along the extreme western fringe of the species distribution is a relatively little collected plant of problematic distinctness called var. *macrotheca* Hodgd. Another variant of which there is too little material available for adequate appraisal is var. *Schaffneri* Hodgd. This is known only from a few stations in northeastern Mexico (Tamaulipas and San Luis Potosí). The conspicuously carinate inner sepals of *L. villosa* are diagnostic and together with several other distinc-

tive features make this species easy to recognize and perhaps indicate a relatively isolated position within the genus. As is to be expected in so widespread a species, considerable



FIGURES 1-10. Sepals and capsules of *Lechea* (pubescence not shown.) Fig. 1. *Lechea villosa;* fig. 2. *L. divaricata;* fig. 3. *L. tenuifolia;* fig. 4. *L. minor;* fig. 5. *L. patula;* fig. 6. *L. Deckertii;* fig. 7. *L. racemulosa;* fig. 8. *L. Leggettii;* fig. 9. *L. Torreyi;* fig. 10. *L. cernua.*

variation is encountered which is striking even within the range of var. *villosa*.

In the course of our studies two collections were examined that seemed definitely to be hybrids between *L. villosa* and *L. racemulosa*. As both of these species are extremely wide-ranging and in part share broadly overlapping areas, it is no doubt indicative of the effectiveness of whatever isolating mechanisms that they possess that so little evidence of hybridization was encountered. The putative hybrids were both collected from the sandy inner margin of the Coastal Plain at the outer margin of the range of *L. racemulosa*. One (*Radford 26436* NCU) was from Edgefield Co., S. Carolina and the other (*Wiegand & Manning 2072* CU) was collected in Moore Co., N. Carolina. The spreading stem pubescence of these plants resembles that of *L. villosa* and the sepals are keeled, but not so strongly, as they are in *L. villosa*. The leaves are shaped more like those of *L. racemulosa* and the shape of the inflorescence also is more like that species.

RANGE: The typical variant occurs beyond our area as far north as southern New Hampshire and as far west as eastern Texas and into Illinois.

*Specimens examined from the following counties:* NORTH CAROLINA: Anson, Bladen, Brunswick, Carteret, Cherokee, Cleveland, Craven, Cumberland, Currituck, Dare, Duplin, Greene, Halifax, Harnett, Hyde, Iredell, Johnston, Jones, Lenoir, Montgomery, Moore, New Hanover, Northampton, Onslow, Pender, Richmond, Robeson, Scotland, Wake, Wayne, Wilson. SOUTH CAROLINA: Aiken, Allendale, Barnwell, Beaufort, Calhoun, Charleston, Chesterfield, Clarendon, Colleton, Darlington, Dillon, Dorchester, Edgefield, Fairfield, Florence, Georgetown, Hampton, Horry, Lancaster, Lee, Lexington, Marion, Marlboro, McCormick, Newberry, Orangeburg, Richland, Saluda, Sumter, Williamsburg. GEORGIA: Atkinson, Baker, Brantley, Charlton, Clay, Decatur, Dougherty, Echols, Glynn, Jones, McDuffie, McIntosh, Pierce, Richmond. FLORIDA: Alachua, Citrus, Clay, Columbia, Dixie, Duval, Escambia, Franklin, Gilchrist, Hamilton, Hernando, Lake, Liberty, Leon, Levy, Madison, Manatee, Nassau, Okaloosa, Putnam. TENNESSEE: Bledsoe, Chester, Coffee, Dickson, Fayette, Franklin, Gibson, Henderson, Hickman, Lawrence, Lewis, McNairy, Montgomery, Rutherford, Sumner. ALABAMA: Jefferson, Lee, Mobile, Montgomery, Sumter, Tallapoosa. MISSISSIPPI: Clarke, Hancock, Harrison, Hinds, Jackson, Jefferson, Lafayette, Lincoln, Monroe, Oktibbeha, Pike. LOUISIANA: Allen, Caddo, Claiborne, Grant, Jackson, Lincoln, Rapides, Sabine, Tangipahoa, Union, Vernon, West Feliciana. ARKANSAS: Baxter, Benton, Calhoun, Clark, Cleveland, Columbia, Conway, Dallas, Drew, Faulkner, Garland, Hempstead, Independence, Izard, Jefferson, Johnson, Logan, Marion, Miller, Phillips, Pike, Prairie, Pulaski, Saline, Sevier, Stone, Union, Washington.

2. **L. divaricata** Shuttlew. ex Britt. A most distinctive species restricted in range to southern peninsular Florida. In our key, *L. divaricata* keys out next to *L. villosa* with which it was long confused (or at best treated as a Floridian variant). Hodgdon comments upon their relationship as follows: "It would be difficult to find any *Lechea* differing more from *L. villosa* in everything except quality of pubescence and the general shape of the leaves, both of which are vegetative characters and not in themselves necessarily indicative of close relationship." Hodgdon placed more confidence in the characters of the fruit which he felt indicated the relationships of this species to be closest to *L. Deckertii* and *L. patula*. As is usual when facts are few, speculation is unfettered; obviously too little is known at present to be at all dogmatic about relationships. Although *L. divaricata* is an isolated species, its relationships would seem to us somewhat closer to *L. villosa* than to *L. Deckertii* or *L. patula*.

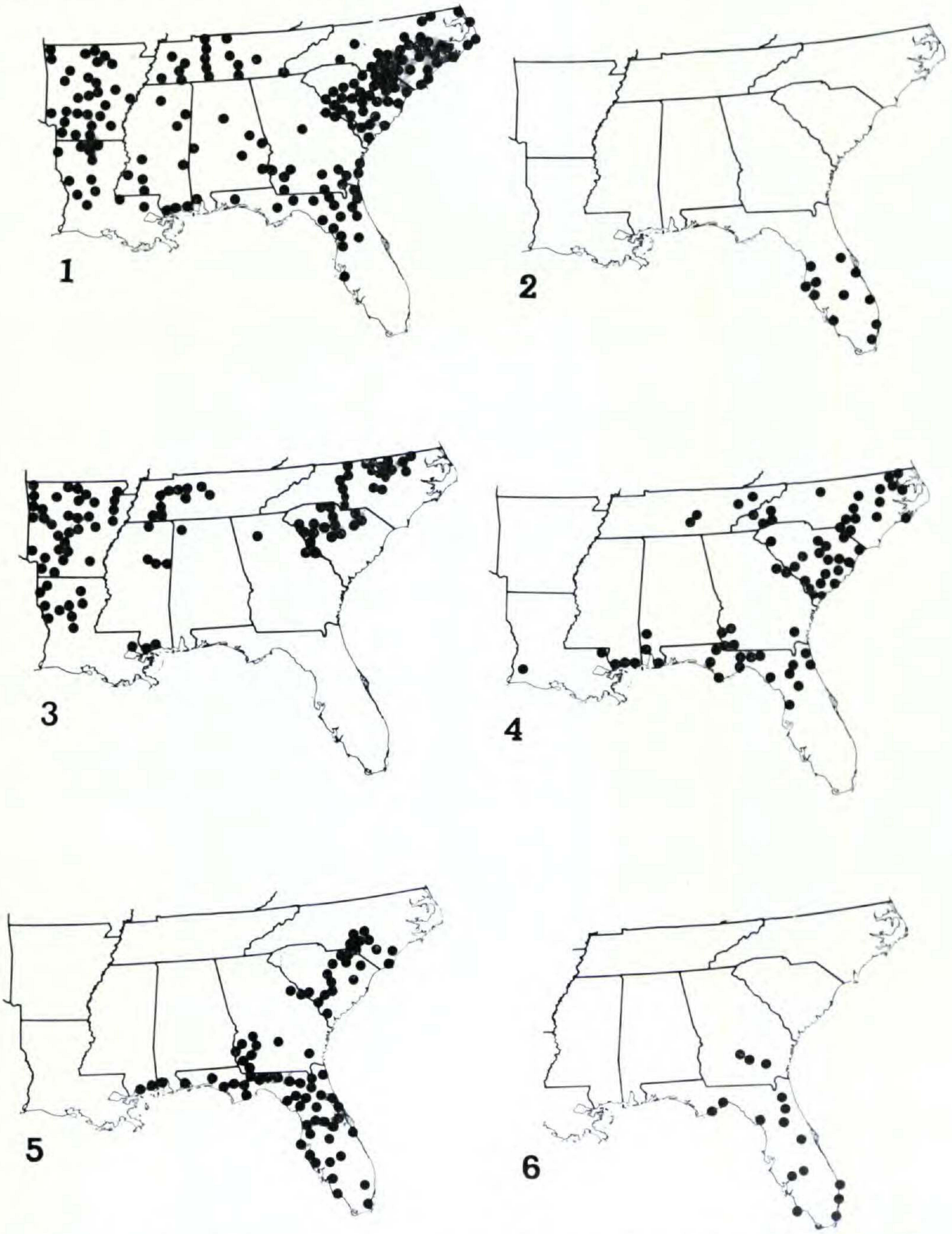
RANGE: Endemic to the southern half of peninsular Florida but apparently absent from the Keys.

*Specimens examined from the following counties of Florida:* Brevard, Broward, Dade, Hernando, Highlands, Hillsborough, Lee, Manatee, Martin, Pinellas, Seminole.

3. **L. tenuifolia** Michaux. A widespread species easily recognized by its very narrowly linear leaves (usually 1.5 mm or less wide), globose capsules and enveloping calyx, and its external sepals that are equal to or more commonly exceed the inner. According to Hodgdon's treatment our representatives of this species belong to var. *tenuifolia* which is distinguished by its smaller stature, fruit and seeds from var. *occidentalis* Hodgd. whose range it somewhat overlaps only in northwest Illinois. In our area it can be confused in the young flowering stages with *L. patula* and in such

cases the greater degree of pubescence and coarseness of the trichomes of *L. tenuifolia* are the best guide to its identity.

RANGE: Hodgdon's typical variety extends beyond our area as far north as southern Maine and as far west as Minnesota and eastern Texas.



MAPS 1-6. Distribution of *Lechea* in the Southeastern United States. Map 1. *Lechea villosa;* map 2. *L. divaricata;* map 3. *L. tenuifolia;* map 4. *L. minor;* map 5. *L. patula;* map 6. *L. Deckertii.*

*Specimens examined from the following counties:* NORTH CAROLINA: Cabarrus, Caswell, Davie, Edgecombe, Durham, Forsyth, Franklin, Granville, Halifax, Harnett, Lee, Northampton, Orange, Person, Rowan, Stokes, Union, Vance, Wake, Warren. SOUTH CAROLINA: Abbeville, Anderson, Cherokee, Chester, Chesterfield, Darlington, Fairfield, Greenwood, Laurens, Lee, Lexington, McCormick, Newberry, Richland, York. GEORGIA: Cherokee, McDuffie, Richmond. TENNESSEE: Benton, Carroll, Chester, Davidson, Dickson, Hardeman, Hickman, Humphreys, McNairy, Rutherford. ALABAMA: Colbert. MISSISSIPPI: Benton, Hancock, Harrison, Lowndes, Oktibbeha, Webster. LOUISIANA: Bossier, Caddo, Caldwell, DeSoto, Grant, Natchitoches, Ouachita, Rapides, Sabine, St. Tammany, Winn. ARKANSAS:Baxter, Benton, Clark, Columbia, Conway, Crawford, Craighead, Dallas, Drew, Faulkner, Franklin, Garland, Greene, Hempstead, Hot Springs, Independence, Izard, Logan, Marion, Miller, Newton, Ouachita, Poinsett, Prairie, Pulaski, St. Francis, Saline, Sebastian, Sevier, Stone, Washington, White, Yell.

4. **L. minor** L. The type-species of the genus. The only other named by Linnaeus, *L. major*, has been shown to be a synonym of *Helianthemum canadense* (L.) Michx. As was pointed out by Britton (1894), Linnaeus had compounded under *L. minor* at least two other species, *L. villosa* and *L. maritima*, but Britton's typification of the species, although at variance with previous interpretations, has been universally accepted. The species presents few problems in identification as it is easily distinguished by its long external sepals and the comparatively broad and often apparently whorled leaves beneath the inflorescence branches.

RANGE: This species extends north of our area to southern New Hampshire and from there west across southern Ontario to the area of Illinois about Chicago.

*Specimens examined from the following counties:* NORTH CAROLINA: Bertie, Buncombe, Carteret, Cumberland, Duplin, Edgecombe, Forsyth, Gates, Greene, Harnett, Henderson, Hertford, Hoke, Robeson, Scotland, Swain, Transylvania, Wake, Washington. SOUTH CAROLINA: Aiken, Allendale, Anderson, Beaufort, Berkeley, Charleston, Clarendon, Colleton, Dillon, Dorchester, Georgetown, Hampton, Horry, Jasper, Kershaw, Lee, Lexington, Sumter, Williamsburg. GEORGIA: Brantley, Calhoun, Decatur, Early, McDuffie, Seminole, Richmond. FLORIDA: Alachua, Bay, Bradford, Dixie, Duval, Gulf, Hernando, Jackson, Jefferson, Leon, Madison, Marion, St. Johns, Wakulla. TENNESSEE: Coffee, Hamblen, Knox, Warren. ALABAMA: Baldwin, Mobile, Washington. MISSISSIPPI: Hancock, Harrison, Jackson. LOUISIANA: Calcasieu, Washington.

5. **L. patula** Legg. A species of such variability that Small (1933) recognized three species. Hodgdon, after a careful appraisal of the suggested differences, could accept but one. The three species were placed by Small in two different informally named groups. The group "Longisepalae" contained *L. patula* and *L. prismatica* Small while his *L. exserta* was assigned to the group "Brevisepalae". Characteristic features of *L. patula* are its narrowly linear cauline leaves, its sepals that usually either nearly equal one another or the outer ones somewhat the longer, its conspicuously exserted capsule capped by the striking reddish-brown fimbriate stigmas and very loosely enveloped about its basal half (to two-thirds) by the calyx.

RANGE: Endemic to the southeastern Coastal Plain.

*Specimens examined from the following counties:* NORTH CAROLINA: Bladen, Brunswick, Cumberland, Harnett, Hoke, Moore, Pender, Richmond, Scotland. SOUTH CAROLINA: Aiken, Allendale, Bamberg, Calhoun, Chesterfield, Darlington, Jasper, Kershaw, Marion, Marlboro, Orangeburg, Richland, Williamsburg. GEORGIA: Baker, Ben Hill, Brantley, Clay, Decatur, Dougherty, Lee, McDuffie, Miller, Randolph, Richmond, Sumter. FLORIDA: Alachua, Bay, Bradford, Brevard, Broward, Calhoun, Collier, Columbia, Dade, Dixie, DeSoto, Duval, Escambia, Flagler, Franklin, Gadsden, Gilchrist, Hernando, Highlands, Jefferson, Lake, Liberty, Lee, Leon, Levy, Madison, Manatee, Marion, Orange, Pasco, Pinellas, Polk, Putnam, Sarasota, Seminole, Suwannee, Sumter, Volusia, Walton. ALABAMA: Mobile. MISSISSIPPI: Harrison, Jackson.

6. **L. Deckertii** Small (including *L. myriophylla* Small). An unmistakable species distinguished by its suffruticose habit, more or less globose fruit with thin papery walls tardily dehiscent at maturity, and its exceedingly short external sepals and often strongly divergent inner sepals. Small (1933) distinguished two species by means of the following key to his group "Myriophyllae".

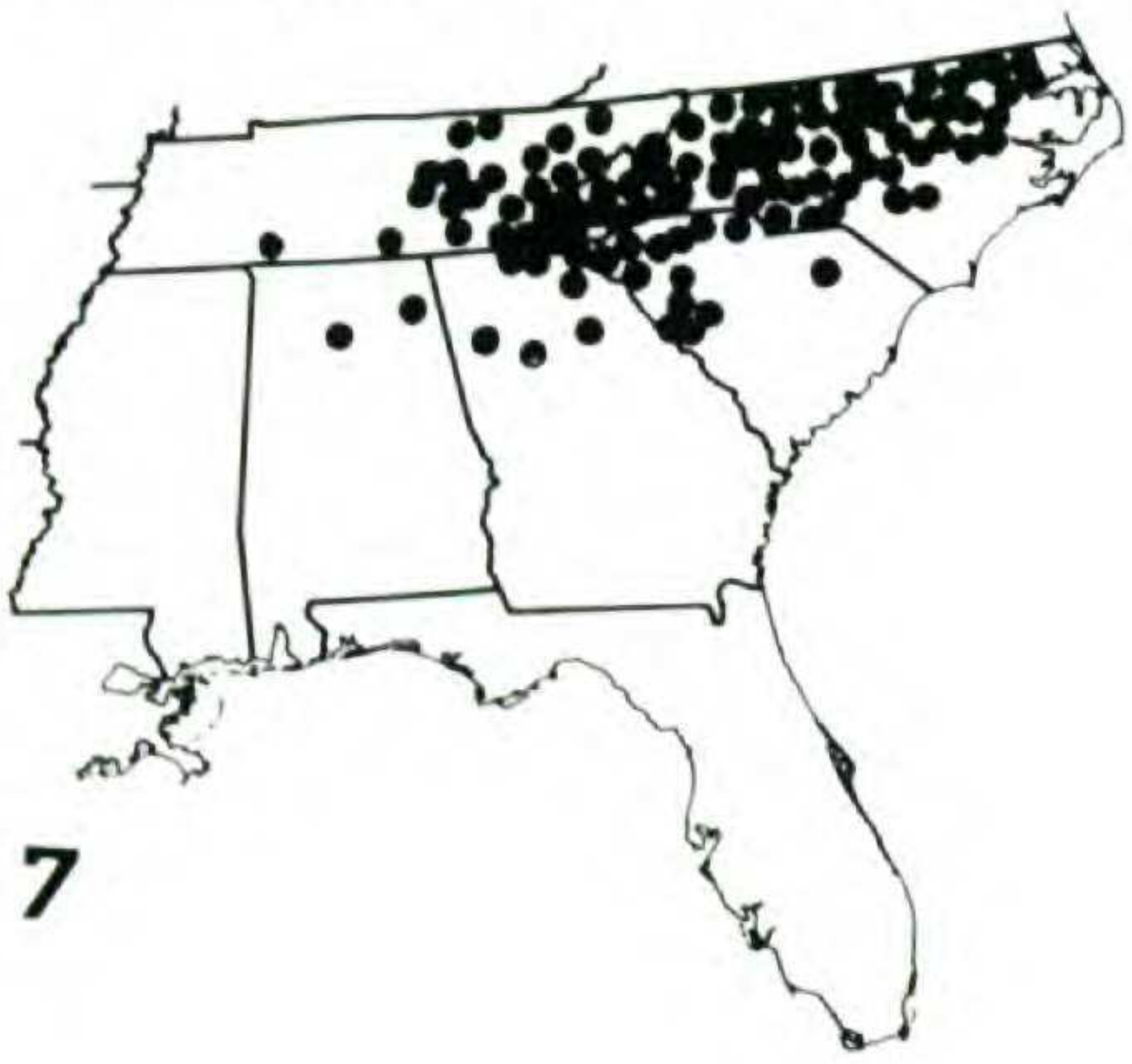
Leaf-blades subulate to elliptic-subulate: capsule depressed-globose. ........................................13. *L. Deckertii.*
Leaf-blades elliptic, sometimes narrowly so: capsules globose......... ........................................14. *L. myriophylla.*

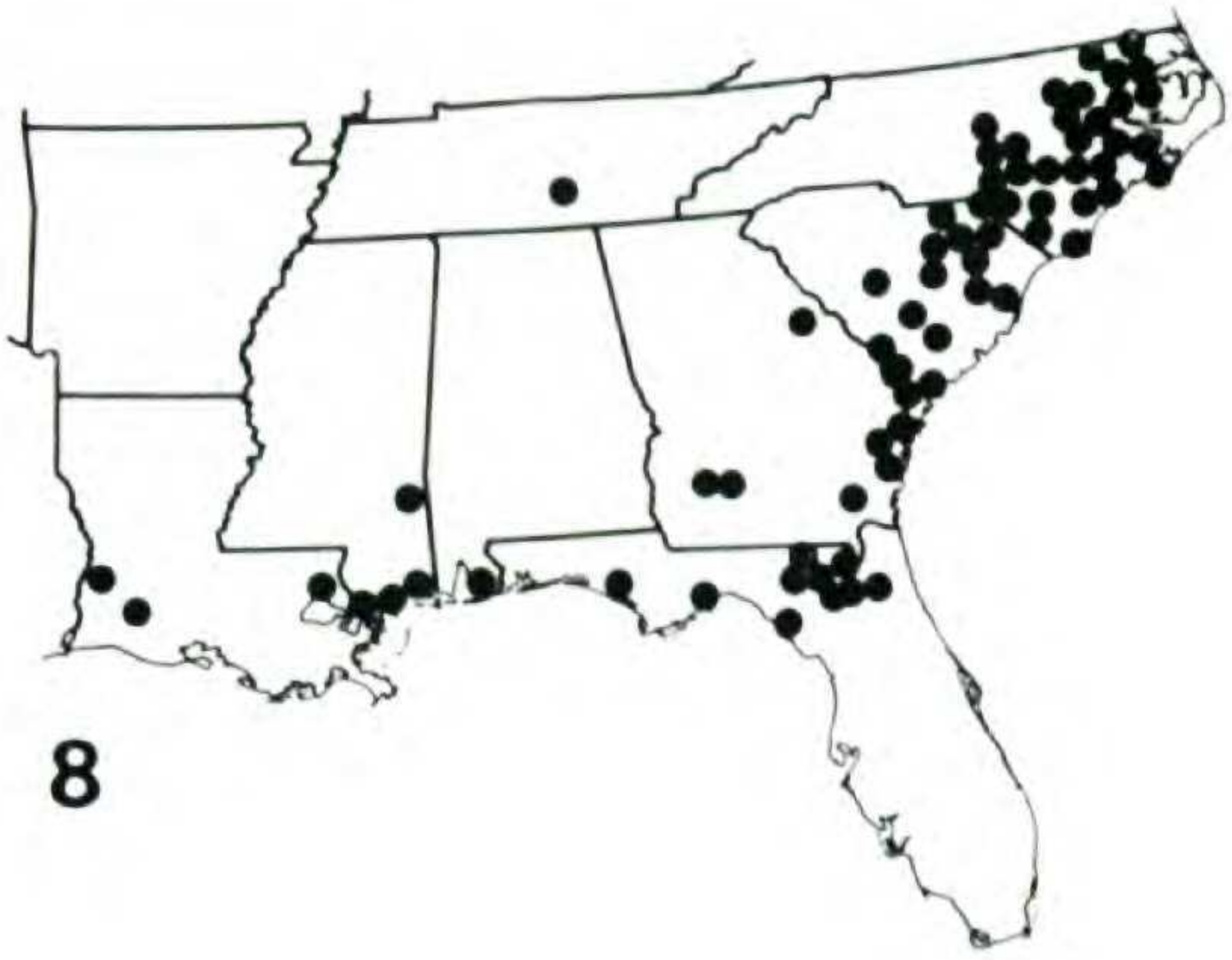
Hodgdon concluded that these were merely growth-differences. He found that there did seem to be a difference in calyx pubescence between the two populations described as separate species by Small with *L. myriophylla* having a nearly glabrous calyx. He concluded however that these largely vegetative variants could be included within the bounds of one species. We have seen considerably more material than was available to Hodgdon and our conclusion is no different than his.

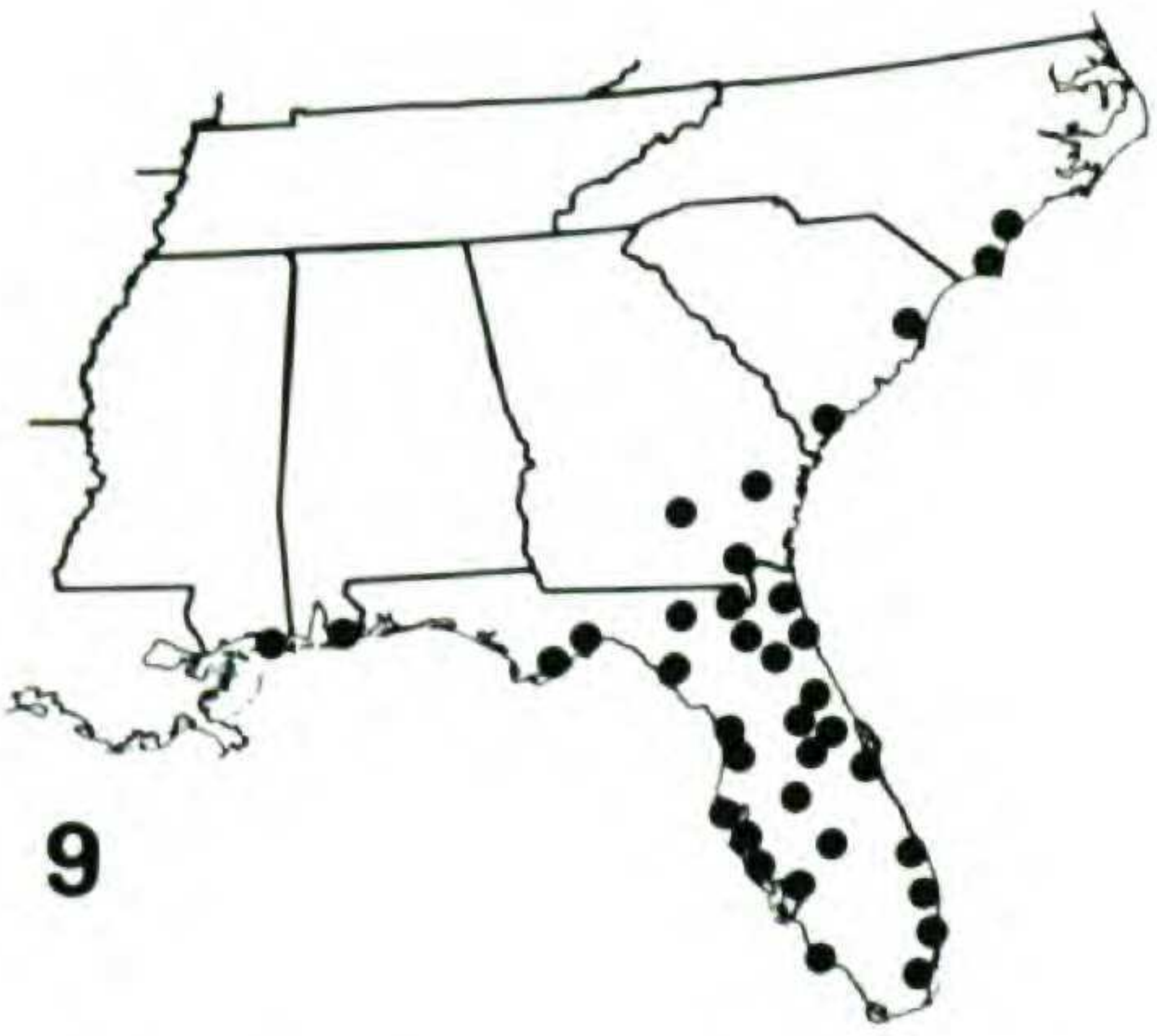
RANGE: Known only from the Coastal Plain of southern Georgia and throughout much of Florida.

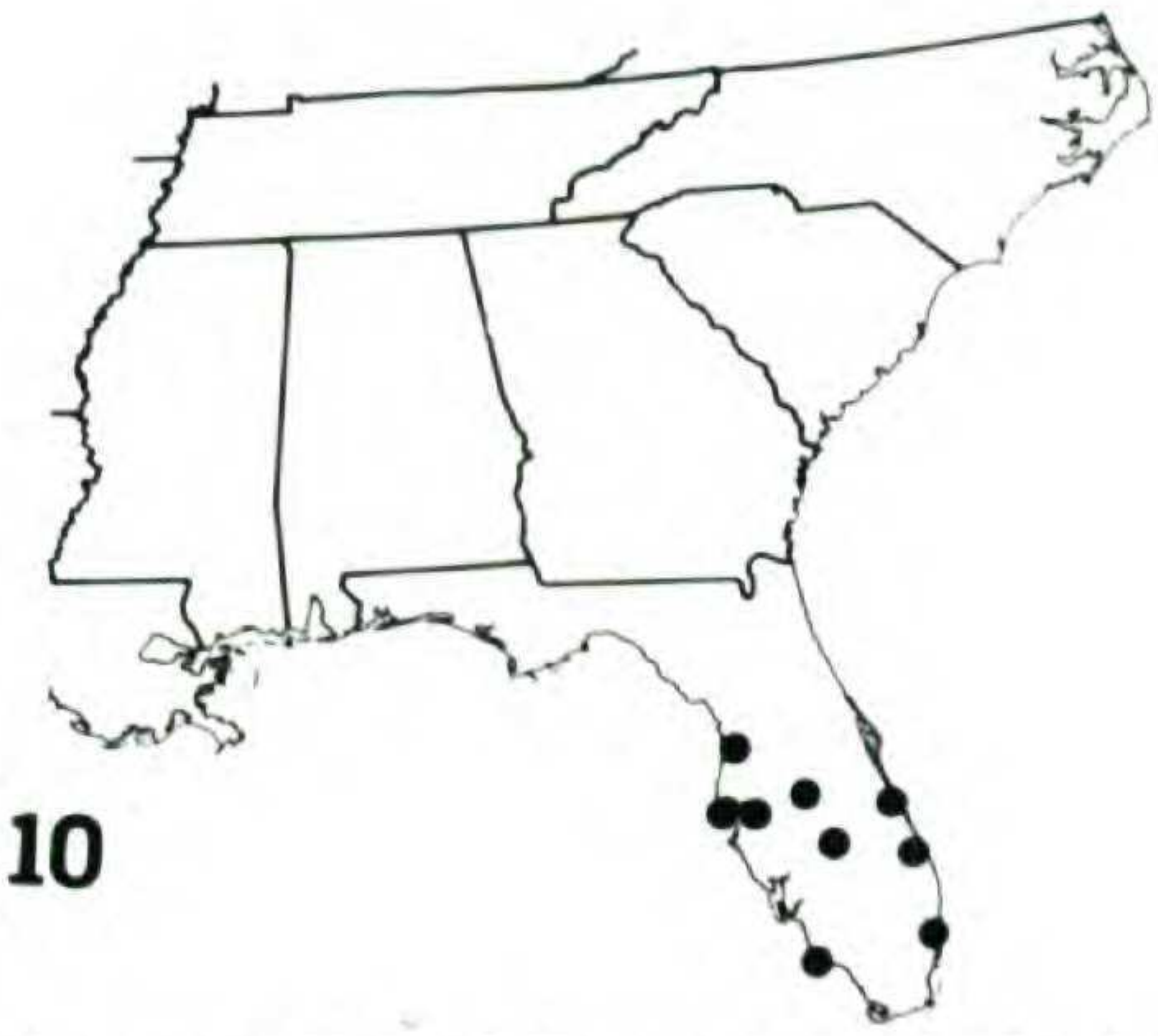
*Specimens examined from the following counties:* GEORGIA: Ben Hill, Coffee, Pierce. FLORIDA: Broward, Clay, Collier, Dade, DeSoto, Franklin, Highlands, Levy, Marion, Orange, Palm Beach, Putnam, Wakulla.

7. **L. racemulosa** Michx. The Appalachian distribution pattern of this species has been modified by a migration onto the Coastal Plain from upper North Carolina to Long Island (but scarcely at all further south) and by its sporadic


7


8


9


10

MAPS 7-10. Distribution of *Lechea* in the southeastern United States. Map 7. *Lechea racemulosa;* map 8. *L. Leggettii;* map 9. *L. Torreyi;* map 10. *L. cernua.*

occurrence in parts of the glaciated Midwest. It is distinguished by its relatively long, slender pedicels and its conical, hardened shiny calyx-base. It apparently rarely hybridizes with *L. villosa* under which name the intermediates are discussed.

RANGE: Extending north of our area to Long Island and southern Ohio and Indiana. Reappearing in Indiana on the shore of Lake Michigan and also in eastern Missouri.
*Specimens examined from the following counties:* NORTH CAROLINA: Alamance, Alexander, Alleghany, Anson, Bertie, Buncombe, Burke, Cabarrus, Caldwell, Caswell, Catawba, Chatham, Cherokee, Chowan, Clay, Cumberland, Davidson, Davie, Durham, Edgecombe, Forsyth, Franklin, Gates, Graham, Granville, Greene, Guilford, Halifax, Harnett, Haywood, Henderson, Hertford, Iredell, Jackson, Johnston, Lee, Lincoln, Macon, Martin, McDowell, Mecklenburg, Mitchell, Montgomery, Moore, Nash, Northampton, Orange, Person, Pitt, Polk, Randolph, Richmond, Rockingham, Rowan, Rutherford, Sampson, Stanly, Stokes, Surry, Swain, Transylvania, Union, Wake, Warren, Watauga, Wilson, Yadkin, Yancey. SOUTH CAROLINA: Anderson, Cherokee, Darlington, Edgefield, Greenville, Greenwood, Laurens, McCormick, Oconee, Pickens, Saluda, Spartanburg, York. GEORGIA: Clarke, DeKalb, Fanin, Habersham, Paulding, Rabun, Union. TENNESSEE: Bledsoe, Blount, Cocke, Cumberland, Fentress, Franklin, Grainger, Hamilton, Hawkins, Knox, Monroe, Polk, Rhea, Roane, Scott, Sevier, Van Buren, Wayne, White. ALABAMA: Cullman, De Kalb.

8. **L. Leggettii** Britt. & Holl. Hodgdon treats the variant occurring in the South as var. *ramosissima* Hodgd. His two other varieties are found in the Northeast and Midwest. For the most part *L. Leggettii* is restricted to the Coastal Plain but surprisingly one collection from central Tennessee seemed to belong here and adds to the list of Coastal Plain plants found as disjuncts in Tennessee or Kentucky. The most striking vegetative characteristic of this species is the hardened, conical apex of the leaf. The short external sepals, the 3-nerved inner sepals and the subglobose to pyriform fruiting calyx are a combination of characters which render this species rather easily identified.

RANGE: var. *ramossissima* Hodgd., which alone occurs in the Southeast ranges beyond that region only into southeastern Virginia.

*Specimens examined from the following counties:* NORTH CAROLINA: Bertie, Beaufort, Bladen, Brunswick, Carteret, Chatham, Chowan, Columbus, Craven, Cumberland, Duplin, Edgecombe, Gates, Greene, Harnett, Hoke, Jones, Lee, Martin, Nash, Northampton, Onslow, Pamlico, Pender, Pitt, Robeson, Sampson, Scotland, Washington, Wilson. SOUTH CAROLINA: Allendale, Beaufort, Chesterfield, Darlington, Dillon, Dorchester, Florence, Georgetown, Hampton, Jasper, Lee, Lexington, Orangeburg, Sumter, Williamsburg. GEORGIA: Brantley, Chatham, Dougherty, Liberty, McDuffie, McIntosh, Worth. FLORIDA: Baker, Bay, Bradford, Clay, Columbia, Dixie, Hamilton, Suwanee, Union, Wakulla. TENNESSEE: Coffee. ALABAMA: Baldwin. MISSISSIPPI: Hancock, Harrison, Jackson, Wayne. LOUISIANA: Beauregard, Jefferson Davis, St. Tammany.

9. **L. Torreyi** Legg. ex Britt. It seems probable that both Britton (1894) and Small (1903, 1933), in attributing to *L. maritima* Legg. ex Britt. a range as far south as Georgia, actually mistook some specimens of *L. Torreyi* for it. *L. maritima* is not known south of Virginia. Leggett (1878) pointed out that there are two distinguishable elements within the populations now covered by *L. Torreyi*. The differences were largely overlooked until Hodgdon (1938) treated the two as varieties distinguished by him more or less as follows:

Var. *Torreyi:* Seeds 4-6; calyx dark brown to slightly ferruginous and densely pilose with cinereous pubescence; fruit somewhat loosely arranged or scattered.

Var. *congesta:* Seeds 3; calyx usually markedly ferruginous and pubescence not conspicuously cinereous; fruit densely clustered.

The typical element was thought by Hodgdon to be restricted to Florida where var. *congesta* also was abundantly represented but which in addition ranged as far north as southeastern North Carolina and west into Mississippi. There is neither geographic segregation of the two types within peninsular Florida nor from the scanty information available is there any ecologic separation. The morphological differences are certainly not striking or clear-cut and, with the exception of the number of seeds in each capsule, are rather subjective in nature. Our study has not been exhaustive but we chose not to recognize the two varieties. More material and habitat information are required before a proper evaluation of them can be made. We would like to reemphasize that Hodgdon reports the reappearance of this species (the 3-seed variant) about 800 miles across the Gulf of Mexico in the pine forests of British Honduras.

A far more conspicuous variant has come to our attention and is represented by two sheets in the Buswell Herbarium from the "Sandy scrub above Fort Lauderdale." It is completely glabrous (leaves, stems and calyx) and of a dark reddish brown. There is but one vein in the inner sepal and that is strongly elevated — so much so as to form almost a keel. This vein extends to the very apex of the sepal. We have seen nothing remotely approaching these specimens but feel it best not to recognize them formally until more is known about the population to which they belong.

RANGE: The range of this species is shown by the accompanying map except for the reappearance of the species in British Honduras.

*Specimens examined from the following counties:* NORTH CAROLINA: Brunswick, Pender. SOUTH CAROLINA: Beaufort, Georgetown. GEORGIA: Charlton, Coffee, Long. FLORIDA: Alachua, Baker, Bradford, Brevard, Broward, Charlotte, Citrus, Collier, Dade, Dixie, Duval, Franklin, Hernando, Highlands, Lake, Lee, Manatee, Martin, Orange, Palm Beach, Pinellas, Polk, Putnam, St. Johns, Sarasota, Seminole, Suwannee, Volusia, Wakulla. ALABAMA: Baldwin. MISSISSIPPI: Jackson.

10. **L. cernua** Small. The species is so unlike any other within the genus that it is strange that it was overlooked until Small described it in 1924. The flowers and fruits are borne in clusters of 2-4 on stiff, often reflexed pedicels and the leaves are at least minutely pubescent upon both surfaces. The fruits are 1-2-seeded with thickened valves. The species is as distinctive as any within the genus including *L. san-sabeana* (Buckl.) Hodgd., which alone has been provided with a separate formal category by students of the genus.

RANGE: Endemic to peninsular Florida.

*Specimens examined from the following counties in Florida:* Broward, Collier, Hernando, Highlands, Hillsborough, Indian River, Martin, Pinellas, Polk. — DEPARTMENT OF BOTANY, DUKE UNIVERSITY.

LITERATURE CITED

BRITTON, N. L. 1894. A Revision of the Genus Lechea. Bull. Torrey Club **21**: 244-253.

HODGDON, A. R. 1938. A Taxonomic Study of Lechea. Rhodora **40**: 29-69, 87-131. (Reprinted as Contrib. Gray Herb. 121.)

LEGGETT, W. H. 1878. Rafinesque's Lechea. Bull. Torrey Club 6: 246-252.

RAFINESQUE, C. S. 1836. Monograph of Lechea. New Flora and Bot. of N. Am. p. 89-98.

SMALL, J. K. 1903. Lechea *in* Flora Southeastern United States. pp. 798 + 799.

——————1933. Lechea *in* Manual of the Southeastern Flora. pp. 881-884.

MENTZELIA ALBESCENS AND LONICERA XYLOSTEUM IN MISSOURI. — While botanizing near Joplin, Missouri, recently I came upon a plant, obviously belonging to the family *Loasaceae*, which I did not recognize; and I was unable to find it in either the eighth edition of Gray's Manual or in Britton and Brown's Illustrated Flora.

It proved to be *Mentzelia albescens* (Gill.) Griseb., previously known only from much farther west, ranging from New Mexico and Texas through Mexico and to Argentina and Chile. The plant was described by Gray as *Mentzelia Wrightii* in Plantae Fendlerianae Novi-Mexicanae, Mem. Amer. Acad. 4: 48. 1849; and there are several other synonyms. The determination was confirmed by Dr. Robert E. Woodson, curator of the herbarium, Missouri Botanical Garden.

Where first found, the plant was growing on mine dumps, perhaps at least fifty or sixty years old, on the north side of Turkey Creek about 2½ miles n. w. of Joplin, Missouri. The dumps consist of crumbling limestone and dolomite with fragments and boulders of chert and limestone; and practically no other vegetation was growing on them. The plants here were rather abundant, 3-5 dm. high, nearly simple or a little branched above. My collection data is No. *69221*, Aug. 27, 1960.

A few days later I again found the plant growing on chat piles of old mines about two miles up Turkey Creek and about a half mile n. w. of Joplin. The record here is No. *69227*, along Loan Elm Road, Aug. 30, 1960.